Ordering number: EN 2289C

Monolithic Linear IC

LA7625

Video, Chroma and Deflection Circuit for Color Television Sets

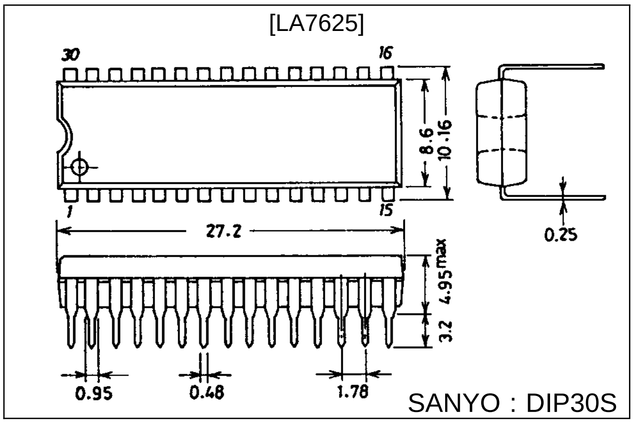
Overview

The LA7625 is based on the LA7620 with the video circuit DC restoration factor changed to 100%. The LA7625 is small, multifunction ICs in which video, chroma and deflection circuits for NTSC color TV system are packaged in a shrink-type DIP30S (the same type as the earlier DIP22). In addition to being small, these ICs greatly reduce the number of components required and reduce the number of adjustments that must be made.
By combining the LA7625 with the LA7555 or LA7577 VIF/SIF IC, or LA7832, LA7833, LA7837, or LA7838 vertical output IC, it is possible to process all functions of the color television signal system. Note that the LA7625 has a peak clipping circuit built into the video circuit, and is suited primarily for compact sets.

Package Dimensions

unit : mm

3061-DIP30S



Features

- Small package
- Few peripheral components needed.
- Few adjustments needed.
  (The functions listed below require no adjustments.)
  - Chroma VCO (APC)
  - Horizontal oscillation H-Hold
  - Vertical oscillation V-Hold
- Multifunctional.

Specifications

Maximum Ratings at Ta = 25 °C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{16} max		14.0	V
Maximum supply current	I_{22} max		15.0	mA
Allowable power dissipation	Pd max	Ta ≦ 65 °C	1100	mW
Operating temperature	Topr		–20 to +85	°C
Storage temperature	Tstg		–55 to +125	°C

Operating Conditions at Ta = 25 °C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{16}		12.0	V
Recommended supply current	I_{22}		10.0	mA
Operating supply voltage range	V_{16} op		9.0 to 14.0	V
Operating supply current range	I_{22} op		8.5 to 15.0	mA

Electrical Characteristics at Ta = 25 °C, V_{CC} = V_{16} = 12 V, I_{CC} = I_{22} = 10 mA

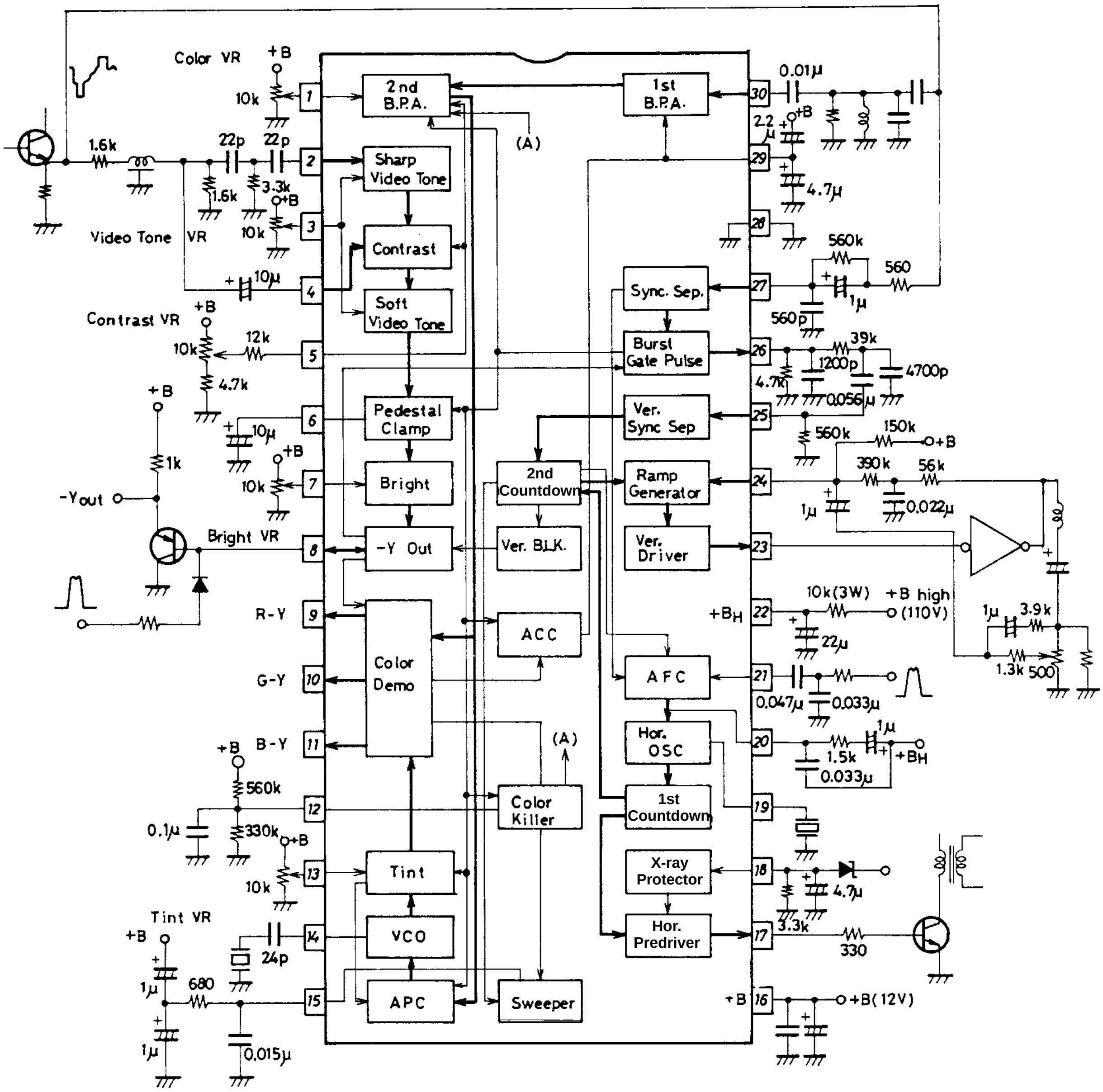
Parameter	Symbol	Conditions	min	typ	max	Unit
Circuit current	I_{16}	No signal	40	53	75	mA
[Deflection block]						
Horizontal supply voltage	V_{Z22}		8.2	8.7	9.2	V
Sync separation input DC level	$V_{S.S}$		9.0	9.3	9.6	V
Vertical free-running frequency	f_V1			f_H/296.5		Hz
	f_V2			f_H/224.5		Hz
Vertical blanking pulse width	PW V.blk			19.25/f_H		s
Vertical output pulse width	PW V.out			10.25/f_H		s
Vertical drive stage voltage gain	G_V		13	16.2	19	dB
Vertical output pulse start voltage	Vcds				4.0	V
Vertical pull-in operation start voltage	Vvps				4.0	V
Vertical blanking pulse wave peak value	VV.blk			10		V
Horizontal free-running frequency	f_H	Frequency deviation versus 15.734 kHz	–70	0	130	Hz
Dependence of horizontal oscillation frequency on supply voltage	$\Delta f_H(V)$	$f_H(8V)–f_H(7V)$	–10	0	10	Hz
Dependence of horizontal oscillation frequency on ambient temperature	$\Delta f_H/\Delta T$	T_a = –10 °C to 60 °C	–1.5		1.5	Hz/deg
Horizontal output pulse width	PW Hout		23.5	24.5	25.5	µs
Horizontal sync pull-in frequency range	$f_H$pull	Differential versus 15.734 kHz	400			Hz
			–500			Hz
Horizontal output pulse start voltage	$V_H$pos				5.5	V
Horizontal free-running frequency drift with time	Δf_{HT}	for 5 seconds to 30 minutes after power is applied	–50	–10	30	Hz
Hotizontal blanking threshold level	V_H.blk		11			V
Horizontal output drive current	$I_{H.O}$		2.0		4.5	mA
Horizontal oscillation control sensitivity	B_{fH}	Reference value		236		Hz/µA
Hold-down operation start voltage	V_{HD}		0.55	0.65	0.75	V
[Video block]						
Video tone control characteristics 1	RE1	f = 2 MHz, Video tone VR: 0 V	–5	–3	–1	dB
Video tone control characteristics 2	RE2	f = 2 MHz, Video tone VR: 12 V	12	15	18	dB
Video voltage gain	AV	f = 100 kHz, Video tone VR: 5.5 V	12	15	18	dB
Contrast control center	eo	f = 100 kHz, input: 100 mVp-p	0.2	0.3	0.4	Vp-p
Contrast variable range	Δ eo	f = 100 kHz	16	18	20	dB
Bright control characteristics	BR1	No signal, bright VR: 3 V	8			V
	BR2	No signal, bright VR: 6 V	5.8	6.3	6.8	V
	BR3	No signal, bright VR: 9 V			4.5	V
Frequency characteristics	f	f = 5 MHz/f = 100 kHz	–5			dB
DC restoration factor	R_{DC}	STAIR STEP signal reference value		100		%

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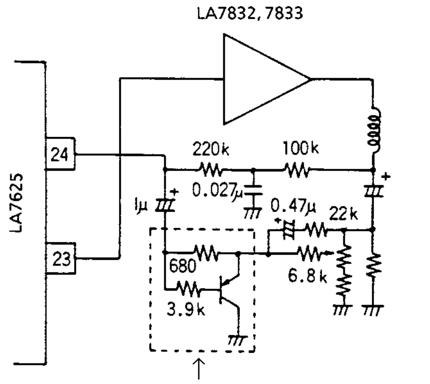
Parameter	Symbol	Conditions	min	typ	max	Unit
[Chroma Block]						
ACC amplitude characteristics	ACC1	Input: +6 dB	–3	0	+3	dB
	ACC2	Input : –20 dB	–7		+2	dB
ACC phase characteristics	$ACC_{ø}1$	Input: +6 dB	–3		+3	deg
	$ACC_{ø}2$	Input: –20 dB	–7		+7	deg
Killer operating point	EK		–55	–46	–40	dB
Color control center	B-Ycen	Output B-Y: color VR 6 V	2.9	4.3	5.5	Vp-p
Maximum demodulation output	B-Y max	Output B-Y: color VR 12 V	5.5	6.5		Vp-p
Color contrast variable range	∆ G cont	Output B-Y	15.5	17.0	18.5	dB
Tint center	T cen	Output B-Y: tint VR 6 V	–17	–5	+7	deg
Tint variable range	∆ T	Output B-Y	+45 –35			deg
APC pull-in range	∆ f APC		±300			Hz
Demodulation output ratio 1	R-Y/B-Y		0.81	0.90	0.98	
Demodulation output ratio 2	G-Y/B-Y		0.24	0.30	0.38	
Demodulation angle	∠R-Y/B-Y	Tint VR 6 V	96	104	112	deg
	∠G-Y/B-Y	Tint VR 6 V	–132	–122	–112	deg
Color difference output DC voltage	V9,10,11		6.7	7.2	7.7	V
Color difference output DC deviation voltage	∆ V9,10,11		–200		+200	mV

Block Diagram of Equivalent Circuit Block and Examples of Peripheral Circuits



Unit (resistance: Ω, capacitance: F)

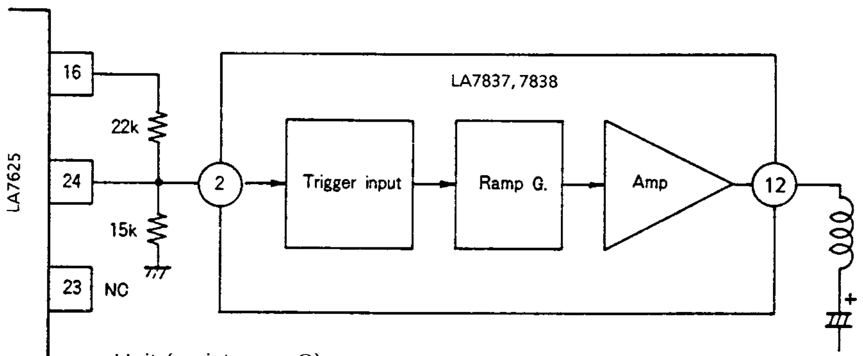
Vertical output IC (LA7832, 7833) connection circuit example
Includes vertical stabilization circuit



Unit (resistance: Ω, capacitance: F)

↑
Vertical stabilization circuit

Vertical output IC (LA7837, 7838) connection circuit example



Unit (resistance: Ω)

This catalog provides information as of December, 1995. Specifications and information herein are subject to change without notice.